Agency IT Plan Contact Data

Steve Kahl
Data Processing Administrator
701-328-4087
smkahl@nd.gov

Review of Agency's IT Architecture

The Public Service Commission is comprised of three commissioners who are elected on a statewide basis to six year terms that are staggered. The Commission is authorized to maintain a staff of 41 full-time employees.

The Commission fulfills its statutory mandates by protecting the public interest and regulating utilities, mining companies, and licensees in a fair, efficient, responsive, and cooperative manner. Regulatory initiatives assure that:

Utility customers receive reliable and safe service at reasonable rates from financially sound companies.

Mined coal lands are reclaimed to provide a safe and productive environment now and in the future.

License and permit holders and operators of commercial weighing and measuring devices operate in a safe and fair manner.

The Commission has seven divisions, each of which has distinct areas of responsibility. These divisions and responsibilities are:

Public Utilities Division - Regulate telecommunications, natural gas, and electric utilities and oversee siting applications for energy generation and transmission facilities.

Testing & Safety Division - Monitor the accuracy of commercial weighing and measuring devices that are used throughout the state and monitor the operations of energy distribution pipelines to promote public safety.

Licensing Division - License and regulate public grain warehouses, roving grain and hay buyers, auctioneers and auction clerks, railroads to the extent provided for by state law and represent North Dakota's rail shipping interests in federal proceedings and in direct negotiations with rail carriers.

Reclamation Division - Issue permits to companies that are proposing to conduct coal mining activities in the state and monitor subsequent mining activities to ensure compliance with North Dakota's reclamation laws.

Abandoned Mine Lands Division - Use available federal funds to identify and prioritize hazards associated with pre-reclamation law mine sites in North Dakota, develop construction designs to minimize or eliminate the greatest hazards, and hire contractors to undertake related work.

Legal Division - Provide the Commission and its various divisions with legal counsel; assist the Commission in the adjudication of cases filed with the Commission and represent the Commission in other jurisdictional cases that are subsequently appealed to the courts.

Administrative Division - Administer the agency's day-to-day activities including budgeting, accounting, human resources and agency administration, grant administration, and procurement.

For further information see IT Asset Management Plan and Planned Infrastructure Activities and Changes.

Planned Infrastructure Activities and Changes

Technology Direction 1. Use of high-end, specialized scientific and engineering software (including AutoCAD and GIS) provided by the federal Office of Surface Mining (OSM) and expanding the use of remote sensing and image analysis.

- Objective(s)
  - Coordinate with engineers and scientists from the PSC, OSM and Industry.
  - Maintain and enhance acceptable and effective tools.
  - Meet legal and technical requirements of state and federal statutes and rules.
  - Meet software licensing requirements.
  - Plan maintenance and installation around schedules of high cost professionals.
  - Maximize quality.
- Supports
  - Reclamation and Abandoned Mine Lands division's management applications.
  - Reclamation and Abandoned Mine Lands division's technical analysis of data used for day to day business processes

Technology Direction 2. Integrate Graphical Information Systems (GIS) with legacy databases and other electronic information supporting the agency business units. This has started with the Reclamation and Abandoned Mine Lands (AML) divisions.

- Objective(s)
  - Coordinate with engineers, scientists, and administrators from the divisions.
  - Identify electronic information associated with mine areas.
  - In coordination with technical staff develop business processes supported by an integrated GIS system to increase speed, accuracy and effectiveness of mine permitting, inspection and enforcement and prioritizing and designing AML reclamation projects.
  - When economically feasible and technically practical, utilize ITD standard products.
  - When practical, leverage ITD's licensing, systems, and expertise.
- Supports
  - Currently supporting Reclamation and Abandoned Mine Lands division's management applications.
  - Currently supporting Reclamation and Abandoned Mine Lands division's technical analysis of mine related business processes.
  - Future integration with Public Utilities, Licensing and Testing and Safety divisions, with initial support of siting applications.

Technology Direction 3. Economical management and storage of large numbers of graphics files.

- Objective(s)
  - Storage is allocated in discussion and agreement with end users on the basis of volatility, archive requirements, speed, and reliability.
  - Ensure least cost and best match solution.
  - When economically feasible and technically practical, utilize ITD standard products.
  - When practical, leverage ITD's licensing, systems, and expertise.
- Supports
  - all agency personnel, business processes and divisions

Technology Direction 4. Conversion of all PSC documents and data to digital format (ongoing, to ease physical storage, make data more usable and support automated work flow to increase efficiency).

- Objective(s)
  - Work with administrative personnel, engineers, scientists from PSC, OSM, Industry, and ITD to find a solution which will accommodate all necessary information, integrate into federal, state, and industry systems and allow data from each to seamlessly integrate into the whole.
  - Integrate the existing case management system and databases into the workflow system.
  - When economically feasible and technically practical, utilize ITD standard products.
  - When practical, leverage ITD's licensing, systems, and expertise.
- Supports
  - all agency personnel, business processes and divisions

Technology Direction 5. End-user team development of integrated agency-wide database and workflow system.

- Objective(s)
  - Provide IT support and interaction with ongoing agency systems management project team composed of non-IT end-users and administrators to re-design how the PSC does business in the 21st century (This is an agency business analysis project).
  - When economically feasible and technically practical, utilize ITD standard products.
  - When practical, leverage ITD's licensing, systems, and expertise.
- Supports
  - all agency personnel, business processes and divisions

Technology Direction 6. Weights and Measures Division field usage of IT technology.

- Objective(s)

- Monitor and refine current field usage processes with inspectors.
- Maintain a workable, automated process in collaboration with inspectors.
- Identify systems, hardware and software that integrate with current systems, industry standards, and are field deployable.
- When economically feasible and technically practical, utilize ITD licensing, systems, and expertise.

- Supports
  - Testing and Safety Division, business processes and applications.

Technology Direction 7. Electronic permitting (conceived in 1996, implemented in 1999 and continually evolving; involved fast interaction between PSC, OSM and industry users who designed the system. PSC needed to match industry ability to test, buy, and use cheap, effective hardware and software with end-user decision-making flexibility).

- Objective(s)
  - Work with administrative personnel, engineers and scientists from the PSC, OSM and Industry who design and enhance the process. The PSC will continue to enhance solutions which will accommodate all necessary information, integrate into federal, state, and industry systems and allow data from each to seamlessly integrate into the whole.
  - Meet all state and federal requirements for proper submission of a permit.
  - Rapid procurement of hardware and software for compatibility with e-permit usage and format.
  - When economically feasible and technically practical, utilize ITD standard products.
  - When practical, leverage ITD's licensing, systems, and expertise.
- Supports
  - Reclamation division’s management applications.
  - Reclamation division’s technical analysis of mine related data business processes.
  - Model for developing electronic permitting processes for other agency divisions.

Technology Direction 8. Use of specialized technical software needed by one or more professionals.

- Objective(s)
  - Day to day interactions with PSC administrative personnel, engineers and scientists, OSM and Industry who utilize the applications.
  - When economically feasible and technically practical, utilize ITD standard products.
  - When practical, leverage ITD's licensing, systems, and expertise.
- Supports
  - all agency personnel, business processes and divisions

Technology Direction 9. Ongoing maintenance and enhancement of web-based e-transfer of hydrologic data between Industry and PSC.

- Objective(s)
  - Meet regularly with engineers and scientists from PSC, OSM, Industry and other state agencies to find the most appropriate solution.
  - Leverage current PSC, Water Commission, and ITD infrastructure to create a fully functional, minimal cost, state, federal, and industry integrated hydrologic submission system.
  - Utilize existing Water Commission web interface for public, industry, and governmental study.
  - When economically feasible and technically practical, utilize ITD standard products.
  - When practical, leverage ITD's licensing, systems, and expertise.
- Supports
  - Reclamation division's management applications.
  - Reclamation division's technical analysis business processes and fast retrieval of hydrologic data.

Technology Direction 10. Development of mine permitting data management system based on always-up-to-date queries/reports of databases shared by industry and the PSC (future project envisioned as evolving from e-transfer of data to PSC over the next five years).

- Objective(s)
  - Meet regularly with engineers and scientists from PSC, OSM, Industry task force, and other government agencies to find the most appropriate solution.
  - Leverage current PSC, other state agencies, and ITD infrastructure to create a fully functional, minimal cost, and state, federal, and industry integrated data management system.
  - Meet all state and federal requirements for legal submission of a permit.
  - Rapid procurement of hardware and software for compatibility with e-permit usage and format.
  - When economically feasible and technically practical, utilize ITD standard products.
- When practical, leverage ITD's licensing, systems, and expertise. Supports
  - Reclamation division's management applications.
  - Reclamation division's technical analysis.

Technology Direction 11. Timely communication with business partners (primarily e-mail document transfer and lost ability to modify web server).

- Objective(s)
  - Work with administrative personnel, engineers and scientists from PSC, OSM, Industry, other government agencies and ITD to find a solution that will accommodate all necessary information.
  - Integrate into federal, state and industry systems and allow data from each to seamlessly integrate into the whole.
  - Meet all state and federal requirements for legal submission of reports, data, maps, and plans needed for permits.

- Allow appropriate size documents and data to be transferred electronically.
- Determine needed storage size and necessary retention in mail system.
- When economically feasible and technically practical, utilize ITD standard products.
- When practical, leverage ITD's licensing, systems, and expertise.

- Supports
  - all agency personnel, business processes and divisions

Technology Direction 12. Facilitate In-house software training by OSM.

- Objective(s)
  - Identify necessary hardware and software for training course.
  - Utilize software versions and methods agreed upon by OSM, Industry, and the PSC.
  - Rapid acquisition of hardware, software, and licensing for compatibility with the PSC and OSM licensing.
  - Set up temporary classroom facilities with hardware and software specific to mining with course work integrating state and federal resources as appropriate.
- Supports
  - Reclamation and Abandoned Mine Lands division’s management applications.
  - Reclamation and Abandoned Mine Lands division’s technical analysis business processes

Technology Direction 13. The agency will have well-documented procedures for the programs it develops.

- Objective(s)
  - Maintain and enhance well-documented procedures and programs that are consistently applied.
  - Regularly review and update procedures.
  - Provide necessary documentation on deployed applications.
- Supports
  - all agency personnel, business processes and divisions

Technology Direction 14. Prepare IT Plan.

- Objective(s)
  - To meet legislative mandate.
- Supports
  - all agency personnel, business processes and divisions

Technology Direction 15. The agency will maintain data that is accurate, consistent and easily accessible to the public.

- Objective(s)
  - Provide easy public access through a web-based search and retrieval system for appropriate docket information.
  - Work with PSC divisions, and Industry to find a web-based solution which will accommodate all on-line self-docketing for industry and the public.
  - Continue to advocate internet connectivity as a technical tool and promote electronic sharing of information.
  - Continue development of Commission's web site. Site must have current, accurate and useful information for the public and regulated industries.
  - Create infrastructure necessary to allow better public access to Commission information.
  - Define, execute, and regularly test disaster recovery plan for all systems.
  - Continue to accept all electronic coal mine permit applications, and work with industry and the public to accept more applications electronically.
  - Implement all changes and new systems with E-government support as a critical element.
  - Conversion of paper documents to support use and accessibility.
- Supports
  - all agency personnel, business processes and divisions

Technology Direction 16. The agency will use the electronic records as the legal document.

- Objective(s)
  - Review and revise Commission administrative rules regarding electronic records following ITD's rules and guidelines.
  - Review and update mechanisms and administrative rules for electronic submission of legal documents.
- Supports
  - all agency personnel, business processes and divisions

1. If applicable, describe the reason for any extraordinary increase or decrease in your infrastructure costs.
Please see narrative

2. Total number of desktop computers: 30
Number of desktops for which you are requesting replacement funding: 31
Average replacement cost/desktop: 1,725

3. Total number of laptop computers: 29
Number of laptops for which you are requesting replacement funding: 14
Average replacement cost/laptop: 1,900

What state planning region are these desktop/laptop computers located?

Region 1	0	**2**	0	**3**	0	**4**	0	**5**	0	**6**	0	**7**	59	**8**	0

4. What percentage of these pcs are running the following operating systems:
(total should be equal to 100%)

Open Source OS	1 **%**
MAC OS	0 **%**
Windows Vista	4 **%**
Windows XP	95 **%**
Other	0 **%**

5. What additional expenditures are being paid out of non-appropriated funds? 0
Please explain:

IT Asset Management Plan

The Public Service Commission (PSC) maintains an IT infrastructure supporting PSC business processes. The infrastructure includes necessary technology to serve desktop, server, storage, and back-office needs for PSC business functions. In addition to standard office automation peripherals such as printers and photo-copiers, the PSC also maintains large format plotters and printers and large and small format scanners to address business requirements for the Commission's extensive legislative mandates in areas such as utility regulation, siting of energy related facilities, coal mining, licensing of auctioneers and grain elevators, and monitoring weighing and measuring devices.

The support of PSC business functions requires systems supporting a wide variety of highly specialized technical professionals, including engineers, graphic information specialists, utility analysts, soil and plant scientists and hydrologists. Support of the wide variety of specialists requires a substantial and varied technological infrastructure. Due to the required business processes and the PSC's business partners, the infrastructure and tool set provided must be current and in step with our business partners. The PSC has three FTE's supporting this infrastructure and specialists utilizing the tools provided. Two of the FTE's are programmer/analysts, one supporting non-GIS application development and maintenance, and the other supporting the GIS and related applications. The final FTE is the Technology Director for the Commission and supports servers, storage and back-office systems.

Desktops/Laptops

The PSC provides windows desktops. The operating systems are primarily XP in both the 32 bit and 64 bit versions. The 64 bit versions are used to support the high-end scientific or engineering applications, and the standard version (32 bit) for the standard desktops. The replacement schedule for desktops varies from two to four years depending upon user application. The high-end systems supporting GIS, engineering and scientific systems are replaced on the shortest allowable schedule and often are used as standard desktops for less intensive users. The PSC also maintains a number of specialized workstations for specific applications or processes. These workstations primarily utilize XP, however Linux is also utilized. The replacement of these workstations is approximately three years on average. The PSC maintains laptops for users frequently out of the office or those needing specialized field applications and systems, for example engineers or scientists working in the field. Monitors are replaced as failures occur or after six years. The estimated monitor replacement is approximately 25% per biennium.

Scanners

The PSC maintains two types of scanners. The first provides standard sized document scanning to support common business processes such as case management or licensing. The other is a large format scanner capable of scanning maps and other information up to 42" wide. The scanners are on a four year replacement schedule with the exception of the wide format scanner which has a replacement schedule of six years.

Printers/Plotters

Printing technology has evolved significantly over the past decade, and the PSC has consolidated the majority of the agency print services around two high-speed digital photocopiers. The agency still maintains two color laser printers. In addition, there is still one workgroup printer that is available in one key area for purposes of addressing specific print functions that are not addressed by the digital photocopiers.

In addition to the general-purpose business printing requirements, the PSC will continue to require large format printing capabilities. These are currently being met with a large format HP DesignJet plotter. The replacement cycle will be dictated by the life-cycle of the plotter which is governed by usage. Based upon current usage, it would be reasonable to assume that the replacement cycle will continue to range from 6 to 8 years.

The PSC maintains most of the server infrastructure to support the agency data management and application requirements. Currently, the PSC maintains file and print servers for both standard business functions and high demand GIS, engineering and scientific processes. The PSC also maintains a database server, and GIS server. Mail, standard application services, and WEB services are provided by ITD.

Unlike the desktops, monitors, and other peripherals, server replacement cycles are more often dictated by application requirements and software resource requirements than by equipment life-cycles. It is not uncommon to upgrade or implement software changes that will vastly change the load and demand placed upon the server. Because server performance and reliability impact the productivity of all PSC employees, replacement cycles are matched to the functions that the server provides. The GIS servers currently require greater performance with greater RAM requirements. These servers are generally replaced more frequently with an average replacement cycle of approximately every 2-3 years. Typically, the displaced servers are then re-conditioned to replace the role of the file server. As a result the replacement cycle on average for all of the servers is between 3 and 4 years.

Storage

In addition to the storage that is attached to each desktop, laptop, and server that is replaced as the respective system is replaced, the PSC also maintains a large storage infrastructure. With the overwhelming growth in storage requirements to address both the digital capture of historic and current scientific data resources and on-going GIS initiatives, the PSC was required to address server storage. Internal server storage and direct attached storage did not provide the long-term expansion capabilities or effective management options to address the growing storage requirements for the agency.

Large storage is managed independently of the server infrastructure, and as such, a replacement strategy has been developed that requires replacement of the existing disk and related subsystems every 6 years. Given the constant increases in density of storage, the replacement strategy is expected to often be provided by necessary expansion of storage capacity needed to support the PSC business processes.

Software

The PSC maintains a policy to keep all software current. This policy is complicated by the need to maintain synchronous software deployment with the PSC's business partners

and federal oversight agency, Office of Surface Mining (OSM). Much of the software utilized by the PSC's federal programs is provided by OSM. PSC experience indicates routine incremental upgrades are far less traumatic to business functions than larger periodic wholesale updates, providing improved productivity. Development platforms, databases, and other supporting systems are maintained at current stable release levels. Application development staff migrates and maintains applications in current development platforms and release levels. When a change in development platforms is prudent applications will be migrated proactively to new technologies.
The mix of software tools that are used within the agency include an array of different schedules and software maintenance issues. For many of the larger applications and software suites the agency is enrolled in annual maintenance agreements to maintain the current state of the software. The following is a list of core software, defined maintenance method and business processes supported:

- Sybase Database System
  - PSC has maintained Sybase since its adoption in 1993.
  - Supports all business applications except GIS, scientific or engineering based applications.
  - Supports applications developed by the PSC and ITD including PowerBuilder and .NET development platforms.
  - Maintained through maintenance contracts at current stable versions.
- AutoCAD
  - Supports GIS, and engineering business processes.
  - Maintained through maintenance contracts at current stable versions
- ESRI GIS software
  - In development stage and will support business processes throughout the agency.
  - Primary critical application in analysis of mining permits, siting applications, and abandoned mine reclamation projects.
  - Licensing provided by PSC and OSM
  - Maintained in sync with business partners and federal oversight agency (OSM)
  - Maintained through maintenance contract.
- PowerBuilder development environment
  - Utilized since 1993
  - Supports all business applications including non-geographic portions of GIS, scientific or engineering based applications.
  - Primary application in case management, licensing, testing and safety, mining permit administration and general agency administration.
  - Maintained through maintenance contract.
- Microsoft Suite
  - Supports all business applications
  - Maintained through maintenance contract.
- Exam Hand
  - Supports Grain Elevator inspections.
  - Maintained through maintenance contract.
- Various other technical or scientific process applications
  - Maintained as needed dependent upon application and business requirements.

		CURRENT APPROPRIATION	BUDGET REQUEST	OPTIONAL ADJUSTMENTS	REQUEST PLUS OPTIONALS	SUBSEQUENT BIENNIUM
IT5110	SALARIES - PERMANENT	$246,367	$347,328	$0	$347,328	$361,221
IT5160	FRINGE BENEFITS	$100,514	$107,264	$0	$107,264	$111,554
IT5310	IT SOFTWARE AND SUPPLIES	$63,779	$50,079	$11,160	$61,239	$53,650
IT5510	IT EQUIPMENT UNDER $5000	$87,128	$91,855	$0	$91,855	$99,743
IT6010	IT DATA PROCESSING	$137,253	$137,253	$9,400	$146,653	$176,313
IT6020	IT COMMUNICATIONS	$55,536	$61,286	$3,600	$64,886	$70,142
IT6030	IT CONTRACT SERVICES & REPAIRS	$46,400	$62,521	$19,579	$82,100	$88,712
IT6930	IT EQUIPMENT OVER $5000	$32,500	$42,500	$0	$42,500	$42,500
	Total Budget:	**$769,477**	**$900,086**	**$43,739**	**$943,825**	**$1,003,835**
001	STATE GENERAL FUND	$735,873	$658,266	$43,739	$702,005	$953,243
R034	ND PERMANENT PROGRAM	$19,104	$17,344	$0	$17,344	$18,732
R040	AML ADMINISTRATIVE	$14,500	$29,000	$0	$29,000	$31,860
R999	INDIRECT COST RECOVERY	$0	$195,476	$0	$195,476	$0
	Total Funding:	**$769,477**	**$900,086**	**$43,739**	**$943,825**	**$1,003,835**